



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,366	03/15/2001	Geoffrey B. Rhoads	P0325	6399

23735 7590 01/21/2004

DIGIMARC CORPORATION
19801 SW 72ND AVENUE
SUITE 100
TUALATIN, OR 97062

EXAMINER

JOHNS, ANDREW W

ART UNIT	PAPER NUMBER
----------	--------------

2621

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/811,366

Applicant(s)

RHOADS ET AL.

Examiner

Andrew W. Johns

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 12-16, 18-21, 23, 27, 29-36, 39-42, 45, 46 and 48 is/are rejected.
- 7) ☒ Claim(s) 5-7, 9-11, 17, 22, 24-26, 28, 37, 38, 43, 44 and 47 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to because the various figures are not numbered consecutively, as required by 37 C.F.R. § 1.84(u). Specifically, while this application was filed with 57 drawing sheets, including 86 separate drawing figures, the drawings include 11 drawings labeled as "Figure 1" (4 of them identical to each other), 6 drawings labeled as "Figure 2," 4 drawings labeled as "Figure 2A" (all of them identical to each other), 4 drawings labeled as "Figure 2B" (all of them identical to each other), 6 drawings labeled "Figure 3," 4 drawings labeled "Figure 3A" (all of them identical to each other), 4 drawings labeled "Figure 3B" (all of them identical to each other), 8 drawings labeled "Figure 4" (4 of them identical to each other), 3 drawings labeled "Figure 5," 4 drawings labeled "Figure 5A" (all of them identical to each other), 4 drawings labeled "Figure 5B" (all of them identical to each other), 3 drawings labeled "Figure 6," 2 drawings labeled "Figure 7," 2 drawings labeled "Figure 8," 2 drawings labeled "Figure 10," 2 drawings labeled "Figure 11," and 2 drawings labeled "Figure 12." Drawings with the same figure number are *not* numbered consecutively, as required by 37 C.F.R. § 1.84(u). In addition, the sheet numbering fails to comply with 37 C.F.R. § 1.84(t). Specifically, 37 C.F.R. § 1.84(t) requires that the sheets be numbered consecutively, in the format "X/Y" where X is the sheet number and Y is the total number of sheets. However, the drawing sheets filed 15 March 2001 are not numbered consecutively because the sheet numbers periodically start over again at "1" and the total number of sheets also varies periodically.

In addition to the errors in the numbering of the sheets and drawings, the top margins on sheets 8/57 and 45/57 are not at least 1 in. (2.5 cm), as required by 37 C.F.R. § 1.84(g), and the left margins on sheet 7/57 is not at least 1 in. (2.5 cm), as also required by 37 C.F.R. § 1.84(g).

The lines and characters are not uniformly thick and well defined, as required by 37 C.F.R. § 1.84(l), on sheets 26/57, 27/57, 30/57, and 31/57, due to copy machine marks on these sheets, as well as on sheets 33/57, 41/57, 42/57, and 43/57, which include roughly drawn elements and unclear reproductions of screen shots. The characters are not at least 1/8 in. tall on sheets 34/57, 37/57, 38/57, 39/57, 40/57, 41/57, 42/57, and 43/57, as required by 37 C.F.R. § 1.84(p)(3), which also prohibits the intersection of lines and characters, as found on sheets 34/57, 37/57, 38/57, 39/57, and 40/57. Finally, 37 C.F.R. § 1.84(p)(4) stipulates that the same reference numbers can only be used to indicate the same elements in the drawings. However, the drawings include numerous examples of reference numbers that are used to improperly indicate different elements in different drawings. Careful review and revision of the drawings is suggested.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to under 37 C.F.R. § 1.74 because the application does not include a brief description of the drawings. While the various appendices (each of which includes one of the specifications of the various parent applications which are relied upon for priority under 35 U.S.C. § 120) includes a "Brief Description of the Drawings," these descriptions are directed towards the drawings included in the various parent applications that form the basis for these appendices. None of the various descriptions provides a brief description of the drawings as submitted in the instant application on 15 March 2001.

3. The specification is objected to under 37 C.F.R. § 1.71 because the specification does not "set forth the precise invention for which a patent is solicited, in such manner as to distinguish it

from other inventions” (37 C.F.R. § 1.71(b)), and does not provide a description of the invention in “such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use” the invention (37 C.F.R. § 1.71(a)). The instant application includes sections
5 describing the related applications, field of the invention and the background and summary of the invention, but does not include any section entitled “Detailed Description of the Invention.” While the application includes a lengthy set of appendices, which incorporate the specifications of a number of the parent applications, these appendices do not satisfy the requirements of 37 C.F.R. § 1.71, because they do *not* describe the invention for which a patent is sought in this
10 instant application. Specifically, each of the appendices provides a separate description of the invention for which a patent was sought in each of the various corresponding parent applications. Furthermore, appendices are, by definition, “supplementary material usually attached at the end of a piece of writing” (*Webster’s Ninth New Collegiate Dictionary*), so that it is unclear where the main body of the disclosure appears.

15 The invention in the instant application, by virtue of the status of the instant application as a Continuation-in-Part of thirteen earlier-filed applications, is apparently some combination or modification of the inventions disclosed in these various priority applications. However, the specification of the instant application fails to describe how the various elements of the numerous priority applications are to be combined and/or modified to achieve the invention for
20 which a patent is sought in the instant application. Therefore, it is unclear from the specification precisely what the invention is, as the specification (and in particular the appendices) describe a number of elements or features, but fail to clearly define the exact relationship of these various elements or features required by the instant invention. A person skilled in the art would not be

able to readily determine what the instant application is meant to be, and consequently would not be able to make and use it. Thus, the specification fails to provide the description required by 37 C.F.R. § 1.71.

Claim Objections

5 4. Claim 42 is objected to because of the following informalities: Claim 42 fails to conform to the requirements defined in M.P.E.P. § 608.01(m), because it fails to end with a period. Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 102

10 5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

15 (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

20 6. Claims 1-4, 12-16, 21, 23, 27, 30-32, 40-42, 45-46, and 48 are rejected under 35 U.S.C. § 102(e) as being anticipated by Gasper et al. '730 (US 5,919,730 A).

25 With respect to claim 1, Gasper et al. '730 teaches a substrate to which final user printing can be later applied to yield a final printed object (i.e., the document medium having incorporated microdot pattern; column 8, lines 53-54), characterized in that the substrate has been processed prior to final user printing (column 8, lines 53-54; the medium is processed to incorporate the microdot pattern prior to production (i.e., printing) of the document) to yield a steganographic digital watermark pattern (column 6, lines 15-19; the pattern is "substantially undetectable" and therefore can be considered to be a "steganographic watermark") thereon that

does not impair subsequent use of the substrate (any applicable recording technology can be used to produce the document, so that the encoding on the medium does not impair its subsequent use; column 8, lines 62-67), yet conveys plural bits of digital information (column 8, lines 15-21; the patterns form “unique signatures” and a plurality (at least four), so that these “binary signatures” (column 13, line 21) must include a plurality of bits in order to be properly “unique”), the presence of said information not being apparent to a human observer of the substrate (column 7, lines 53-66), said steganographic pattern being detectable by visible-light scanning of the substrate to yield data from which the plural-bit information can be recovered (column 14, lines 57-65). In addition, Gasper et al. ‘730 also teaches that the substrate has been processed with ink to form the steganographic digital watermark pattern thereon (i.e., the microdot pattern is printed on the substrate using ink; see column 8, lines 53-58 and column 9, lines 19-21), as further stipulated by claim 2; that the ink is clear ink (“colorants may be transparent,” column 9, lines 21-22), as set forth in claim 3; that the ink is speckled across at least a part of the substrate (column 6, lines 48-65), as required by claim 4; that the digital watermark extends across the entire face of the substrate (column 6, lines 5-7), as defined by claim 12; or that the digital watermark pattern is restricted to certain areas of the substrate (column 6, lines 12-14), as defined by claim 13; that the substrate has first and second sides and only a first side has a watermark pattern, as required by claim 14, or both sides have watermark patterns, as required by claim 15 (see column 14, lines 1-3; “containing microdots in one or both surfaces”); and that the digital watermark pattern is manifested in a laminate layer (note microdot pattern 14 in the laminate layer 42 shown in Figure 7), as stipulated by claim 16. Finally, Gasper et al. ‘730 additionally teaches that the plural bits of digital information comprise serialization information (i.e., a “signature;” column 8, line 17), permitting the printed document to be uniquely identified

from other, seemingly identical documents (column 8, lines 17-20; "signature" identifies one document from among all others), as required by claim 21; that the watermark pattern is formed on a side of the substrate opposite a side to which final end-user printing is later applied (i.e., on the back; column 12, lines 20-21), as defined in claim 23; and that the substrate is printing stock for a security document such as a bank note (column 14, lines 3-4), as required by claim 27.

With respect to claim 30, Gasper et al. '730 teaches a method of processing a blank substrate prior to final printing by an end-user (i.e., the document medium having incorporated microdot pattern; column 8, lines 53-54), the method comprising forming a steganographic digital watermark pattern (column 6, lines 15-19; the pattern is "substantially undetectable" and therefore can be considered to be a "steganographic watermark") on the substrate that does not impair subsequent use of the substrate (any applicable recording technology can be used to produce the document, so that the encoding on the medium does not impair its subsequent use; column 8, lines 62-67), yet conveys plural bits of digital information (column 8, lines 15-21; the patterns form "unique signatures" and a plurality (at least four), so that these "binary signatures" (column 13, line 21) must include a plurality of bits in order to be properly "unique"), the presence of said information not being apparent to a human observer of the substrate (column 7, lines 53-66), said steganographic pattern being detectable by visible-light scanning of the substrate to yield data from which the plural bit information can be recovered (column 14, lines 57-65). In addition, Gasper et al. '730 also teaches forming the pattern by applying ink to the substrate (i.e., the microdot pattern is printed on the substrate using ink; see column 8, lines 53-58 and column 9, lines 19-21), as further stipulated by claim 31, and that the pattern is formed by ink-jet printing (column 8, line 57), as additionally stipulated in claim 32; that the substrate has a photographic emulsion thereon (column 10, lines 62-63; the substrate is a photographic

medium); the pattern is formed by exposing the emulsion with a noise-like pattern (column 10, lines 63-66; the microdot pattern (i.e., a “noise-like” pattern) is added to the photographic medium by exposure), and the pattern is detectable after developing the substrate (column 12, lines 59-61), as variously required by claim 40; that the pattern is formed on the substrate after
5 delivery of the substrate to the end-user, rather than previously – as by a producer or supplier of said substrate (column 8, lines 47-49; the pattern is added by the end-user after production of the original document), as defined by claim 41, or that the pattern is formed on the substrate prior to delivery of the substrate to the end user – as by a producer or supplier of said substrate, rather than after (column 8, lines 44-46; medium includes pattern prior to the production of the original
10 document thereon), as defined by claim 42; that the pattern is formed of ink (i.e., the microdot pattern is printed on the substrate using ink; see column 8, lines 53-58 and column 9, lines 19-21), and the ink is chosen to optimize watermark detection in the presence of expected illumination spectra (column 15, lines 28-36), as variously stipulated by claim 45; and that the watermark pattern is formed on a side of the substrate opposite a side to which final end-user
15 printing is later applied (i.e., on the back; column 12, lines 20-21), as required by claim 46. Finally, Gasper et al. ‘730 additionally teaches a blank substrate formed according to the method (Note: this limitation is a “product-by-process” limitation that is not limited to the specific process steps, but is directed towards a product including the specific structural or physical limitations imparted or implied by the processing; see M.P.E.P. § 2113; 10 in Figures 8-12 and
20 14-17 is a printable substrate that includes these structural features, as it is produced by the method as met by Gasper et al. ‘730), as required by claim 48. Therefore, Gasper et al. ‘730 meets each of the limitations of each of these claims and anticipates the claimed invention.

Claim Rejections - 35 U.S.C. § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

5 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10 8. Claims 8 and 33-36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gasper et al. '730 as applied to claims 1-4, 12-16, 21, 23, 27, 30-32, 40-42, 45-46, and 48 above, and further in view of Haslop (chapter from *Optical Document Security*, entitled "Security Printing Techniques").

15 While Gasper et al. '730 meets a number of the limitations of the claimed invention, as pointed out more fully above, Gasper et al. '730 fails to specifically describe the formation of the pattern by texturing the substrate by applying force, embossing, or using an intaglio plate, as variously required by claims 8 and 33-36. However, Gasper et al. does teach the formation of the pattern using gravure printing (column 8, line 56, for example). Such gravure printing technique is a well-known type of intaglio printing (see for example Haslop, page 113).

20 Gravure/intaglio printing forms patterns on substrates by applying enormous pressure (Haslop, page 116, lines 1-2 of the second paragraph of section 6.3) to emboss the substrate (Haslop, page 116, line 6 of the second paragraph of section 6.3) using steel plates (Haslop, page 116, lines 5-8 in the first paragraph of section 6.3), and results in a pattern that includes a texture (Haslop, page 117, lines 1-2 of the final paragraph; the print has a three-dimensional structure or texture).

25 Because Gasper et al. '730 teaches the use of the well-known gravure printing technique, and because this printing technique inherently produces a pattern by texturing a substrate using force

to emboss the substrate using intaglio plates, it would have been obvious to one of ordinary skill in the art that the pattern formed on the substrate could be formed by texturing, using the well-known gravure printing technique. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

5 9. Claims 18-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gasper et al. '730 as applied to claims 1-4, 12-16, 21, 23, 27, 30-32, 40-42, 45-46, and 48 above, and further in view of Wang et al. (US 5,471,533 A).

10 While Gasper et al. '730 meets a number of the limitations of the claimed invention, as pointed out more fully above; Gasper '730 fails to specifically teach that the plural bits of digital information comprise an identifier, serving to convey information indicative of an electronic address, the identifier being a pointer into a remote data structure, storing the electronic address, as variously required by claims 18-19.

15 However, Wang et al. teaches a document (Figure 1A) which includes information that is steganographically encoded thereon (pattern can be printed in an ink that is transparent to visible light; column 4, lines 1-3), and further teaches that the digital data can serve as an index to a registry that includes additional information (column 9, lines 51-57). Because the use of the digital data to index such a registry allows for tracking of the security documents, thereby providing additional security for the documents, it would have further been obvious to one of ordinary skill in the art to use the encoded information in Gasper et al. '730 to index a similar
20 registry so as to keep track of the security documents. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

10. Claims 20 and 39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gasper et al. '730 as applied to claims 1-4, 12-16, 21, 23, 27, 30-32, 40-42, 45-46, and 48 above, and further in view of Szepanski (DE 29 43 436 A1).

While Gasper et al. '730 meets a number of the limitations of the claimed invention, as pointed out more fully above, Gasper et al. '730 fail to specifically teach that the watermark pattern conveys a steganographic orientation signal, as further required by claims 20 and 39.

Szepanski teaches forming a substrate with machine readable indicia included thereon (7 in Figure 9). Szepanski further teaches that the machine readable indicia includes a calibration signal (4 in Figures 2 and 3), which provide for more accurate reading of the indicia (translation, page 7, line 25), so that one of ordinary skill in the art would have found it obvious to include a similar calibration signal in the Gasper et al. '730 system so as to provide for synchronized (i.e., "oriented") scanning of the machine readable indicia to provide for more efficient reading of the indicia.

11. Claim 29 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Gasper et al. '730 as applied to claims 1-4, 12-16, 21, 23, 27, 30-32, 40-42, 45-46, and 48 above, and further in view of Moore (US 5,838,814 A).

While Gasper et al. '730 meets a number of the limitations of the claimed invention, as pointed out more fully above, Gasper et al. '730 fail to specifically teach that the substrate comprises a check, as stipulated by claim 29.

12. However, Moore teaches a bank check (shown in Figure 1A, for example) that includes steganographic coding (column 7, line 6) to identify the check and to prevent counterfeiting (column 7, lines 3-13). Because the substrate of Gasper et al. '730 is useful for identifying documents and preventing counterfeiting of currency, it would have been obvious to one of

ordinary skill in the art that the substrates including microdot patterns taught by Gasper et al.

'730 could be used to prevent the counterfeiting of bank checks, as suggested by Moore.

Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention.

5 *Allowable Subject Matter*

13. Claims 5-7, 9-11, 17, 22, 24-26, 28, 37-38, 43-44 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

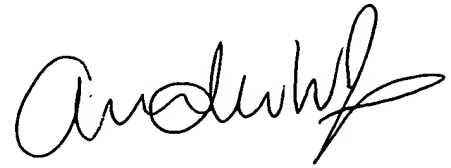
10 14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gasper et al. '250 also teaches substrates having steganographic digital watermark patterns thereon for use in producing documents. Hardwick et al. teaches the use of laminate structures to watermark objects. Guido encodes information onto documents to prevent copying and van Renesse teaches using substrate structure to identify documents.

15 15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Johns whose telephone number is (703) 305-4788. The examiner is normally available Monday through Friday, at least during the hours of 9:00 am to 3:00 pm Eastern Time. The examiner may also be contacted by e-mail using the address: andrew.johns@uspto.gov. (Applicant is reminded of the Office policy regarding e-mail
20 communications. See M.P.E.P. § 502.03)

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for this art unit is (703) 872-9306. In order to ensure prompt delivery to the examiner, all unofficial communications
25 should be clearly labeled as "Draft" or "Unofficial."

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center Customer Service Office whose telephone number is (703) 306-0377.

5



10

A. Johns
16 January 2004

**ANDREW W. JOHNS
PRIMARY EXAMINER**